



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,392	01/31/2002	Hitoshi Tauchi	218198US2	6083
22850	7590	11/18/2003	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			PARSONS, THOMAS H	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/059,392	TAUCHI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thomas H Parsons	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 31 January 2002.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:

Page 4, paragraph [0027], line 7, suggest changing “4a” to --4c--;

Page 5, paragraph [0027], line 1, suggest changing “positioned” to --position--;

Paragraph [0030], line 6, suggest changing “6a” to --5a--;

Paragraph [0031], line 3, suggest changing “4b” to --4d--;

Line 5, suggest changing “4a” to --4c--;

Paragraph [0032], line 4, suggest changing “15b” to --15a--;

Line 8, suggest changing “15a” to --15b--.

Appropriate correction is required.

### ***Claim Objections***

2. Claims 2-4 are objected to because of the following informalities:

Claim 2, line 6, “...to and one end and the other end...” appears awkwardly worded;

Claim 3, line 2, suggest inserting “soldering agent” after “second”; and,

Claim 4, line 2, suggest inserting “soldering agent” after “second”.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1745

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Fuschetti (5,429,680) as further evidenced by Merrian Webster's Collegiate Dictionary and Fleurial et al. (5,610,366).

**Claim 1:** Fuschetti in Figures 1-3 discloses a thermoelectric module (10)(col. 1: 16-18) comprising:

a case (12, wherein the box-shaped body 12 has been broadly interpreted as a case as further evidenced by Webster's which defines a case as a box or receptacle for holding something, or, a box together with its contents);

a heat-radiation side insulating substrate (21);

a heat-absorption side insulating substrate (20);

a first soldering layer (33) formed of a first soldering agent (col. 4: 56-col. 5: 11) at a position to connect the heat-absorption side insulating substrate and the case;

a plurality (col. 1: 37-41) of P-type (15) and N-type (16) semiconductor chips interposed between the heat-radiation side insulating substrate and the heat-absorption side insulating substrate, the plurality of P-type and N-type semiconductor chips being arranged alternately to be connected in a series; and

a second soldering layer (33) formed of a second soldering agent (col. 4: 56-col. 5: 11) at a position to connect the heat-radiation side insulating substrate and one end of each of the plural P-type and N-type semiconductor chips, the second soldering layer also connecting the heat-absorption side insulating substrate and the other end of each of the plural P-type and N-type

Art Unit: 1745

semiconductor chips, the second soldering agent being identical with the first soldering agent in raw material. (col. 1: 16-col. 2: 7; and col. 3: 12-29).

Fuschetti shows a heat-absorption side insulating substrate (20) connected to a case (12) wherein the claimed invention requires a heat-radiation side insulating substrate connected to the case. Fleurial et al. are cited to show that the heat-absorption side insulating substrate of Fuschetti would inherently provide a heat absorption side insulating substrate (Figure 2a) or a heat radiation side insulating substrate (Figure 2b) depending upon the direction current (col. 6: 5-17).

**Claim 2:** Fuschetti discloses in Figures 1-3 a method of producing a thermoelectric module (10) comprising the steps of:

connecting a case (12, wherein the box-shaped body 12 has been broadly interpreted as a case as further evidenced by Webster's which defines a case as a box or receptacle for holding something, or, a box together with its contents); and a heat-absorption side insulating substrate (20) with a first soldering agent (33) to form a first soldering layer between the case and the heat-absorption side insulating substrate;

and connecting the heat-radiation side insulating substrate (21) and a heat-absorption side insulating substrate (20) to one end and the other end, respectively, of each of a plurality (col. 1: 37-41) of P-type (15) and N-type (16) semiconductor chips, with a second soldering (33) agent which is identical with the first soldering agent in raw material (col. 1: 16-col. 2: 7; and col. 3: 12-29).

Fuschetti shows a heat-absorption side insulating substrate (20) connected to a case (12) wherein the claimed invention requires a heat-radiation side insulating substrate connected to the

Art Unit: 1745

case. Fleurial et al. are cited to show that the heat-absorption side insulating substrate of Fuschetti would inherently provide a heat absorption side insulating substrate (Figure 2a) or a heat radiation side insulating substrate (Figure 2b) depending upon the direction current (col. 6: 5-17).

**Claim 3:** Fuschetti discloses on col. 4: 56-col. 5: 11 the first soldering agent (33) and the second soldering agent (33) are selected from the group consisting of 95Sn5Sb, 96.5Sn3.5Ag, 100Sn, and 80Au20Sn

**Claim 4:** Fuschetti discloses on col. 4: 56- col. 5: 11 the first soldering agent and the second soldering agent selected from the group consisting of 95Sn5Sb, 96.5Sn3.5Ag, 100Sn, and 80Au20Sn.

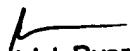
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H Parsons whose telephone number is (703) 306-9072. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (703) 308-2383. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Thomas H Parsons  
Examiner  
Art Unit 1745

\*\*\*

  
Patrick Ryan  
Supervisory Patent Examiner  
Technology Center 1700